

First Aid for Wounds: Health Education for Elementary School Students

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Abstract

Minor injuries such as abrasions and lacerations are common among elementary school students, particularly due to play activities, while limited knowledge and skills in first aid may increase the risk of infection and wound-related complications. This community service program aimed to enhance students' understanding and practical skills in managing minor injuries through structured health education on first aid for wounds. The activity was conducted at SDN 21 Pekanbaru with 18 students as participants. The program included interactive lectures, practical demonstrations of wound care, and the use of audiovisual media as learning tools. Data were collected using pre-test and post-test questionnaires to measure knowledge improvement in minor wound first aid, complemented by direct observation to evaluate first aid skills. Results showed a significant knowledge gain, with mean scores increasing from 76.67 before the intervention to 100 after the session. Similarly, observational scores of first aid skills rose markedly from 32.78 to 100, reflecting substantial competency gains following the educational program. These findings confirm that combining lectures, demonstrations, and audiovisual support is an effective strategy to promote both cognitive and psychomotor domains of learning in elementary students. The

program not only improved students' ability to respond to minor injuries and fostered health literacy applicable in daily life, but also highlights the need for future school-based initiatives in collaboration with Public Health Centers (Puskesmas) to provide first aid training for students and teachers, thereby enhancing preparedness, strengthening competencies, and promoting a sustainable culture of safety and health in schools.

Keywords: Elementary School Students; First Aid; Health Education; Wounds and Injuries.

Introduction

Injury is defined as physical damage that occurs when the human body experiences an energy transfer beyond physiological tolerance limits or due to a deficiency of essential elements such as oxygen. Injuries are generally categorized into three levels: minor (abrasions, scratches, and bruises), moderate (strain and sprain), and severe (dislocation and fracture) (Rhozana, 2023). They can also be classified according to their causes, including intentional injuries such as suicide and sexual violence, and unintentional injuries such as falls, drowning, burns, and poisoning (Pérez, Smith, Alonso, & Perez, 2022).

Globally, injuries are a major public health concern, contributing to approximately 950,000 deaths among children under the age of 18 every year.

Of these, around 230,000 deaths occur in children aged 5–14 years (World Health Organization. (2020). In Indonesia, the incidence of school-related injuries remains high, with wounds, bruises, sprains, cramps, and fractures being the most common types. It is estimated that 10–25% of injuries in children occur during school hours (Nasri & Leni, 2021). According to the Ministry of Health of the Republic of Indonesia (2018), the national prevalence of injuries increased from 8.2% in 2013 to 9.2% in 2018. Among children aged 1–4 years, abrasions and bruises are the most common forms of injury (73.7%), while among those aged 5–14 years, injuries such as wounds and bruises account for 75.5% of cases (Saparwadi et al., 2025)

Several risk factors contribute to injuries in children, including age, sex, personality, weather conditions, and location. Limited supervision, greater freedom in activities, and unstable physical and emotional conditions further increase vulnerability (Widagdo & Anggraeni, 2022). Each year, hundreds of thousands of children die from injuries, and millions more suffer minor injuries with long-term health consequences (Chiundira & Katanga, 2023).

Emergency situations resulting from injuries require immediate medical attention to reduce the risk of disability or mortality (Mumek et al., 2022). First aid plays a vital role as an emergency measure to provide temporary care before professional medical services become available (Arifin & Waladani, 2023). For this reason, it is important for children to acquire basic knowledge of first aid so they can respond to injuries both in school and at home (Sutirta, Latulusi, & Jehambur, 2023). Health education has been identified as an effective strategy to improve knowledge and awareness about first aid practices (Prihantara et al., 2023).

The World Health Organization (WHO) emphasizes the importance of first aid programs in schools to create safe learning environments, focusing not only on accident and injury prevention but also on strengthening community capacity to respond effectively (Hashil et al., 2024). In Indonesia, first aid initiatives are commonly delivered through the School Health Unit (Usaha Kesehatan Sekolah/UKS), which provides care for students experiencing illness or injury at school based on principles of school community participation, integrated activities, and

strong collaboration (Bili, Bili, & Selan, 2022).

Recent technological advances provide opportunities to enhance health education through electronic media. Audiovisual resources, such as educational videos, are particularly useful for presenting information in a dynamic, accessible manner, combining visual and auditory elements to improve understanding (Nugroho, Sutejo, & Prayogi, 2020). Empirical studies have confirmed the effectiveness of video-based education in increasing students' first aid knowledge. For example, average knowledge scores increased from 12.10 before to 15.55 after exposure to educational videos (Aristiani & Romiko, 2023). Similarly, audiovisual interventions have been shown to significantly improve students' preparedness in providing first aid during emergencies (Rosuliana, Februanti, Mariani, & Cahyati, 2023).

Taken together, these findings highlight the critical role of school-based first aid education in promoting children's health literacy and preparedness. The integration of audiovisual tools with structured health education can enhance both cognitive

and psychomotor learning domains, equipping students with essential skills to respond effectively to minor injuries. Therefore, the implementation of community service programs focusing on first aid education for elementary school students is highly relevant and necessary to strengthen safety practices and prevent injury-related complications in school environments

Method

This community service activity employed a participatory-educational approach, in which students were not merely passive recipients of information but actively engaged in the learning process through hands-on practice. The primary target group consisted of fourth- and fifth-grade students at SDN 21 Pekanbaru. This age group was selected based on their cognitive development, as students at this stage can understand new concepts and sufficiently developed in their motor skills to practice first aid procedures. The activity was conducted in June 2024, lasting approximately three hours, in the Unit Kesehatan Sekolah (UKS), with a total of 18 students accompanied by the class supervisors.

The implementation of the program began with systematic planning, which included a needs assessment through interviews with teachers and students. The interviews revealed a high incidence of minor injuries, such as abrasions and lacerations, resulting from playing activities, while students' knowledge of first aid was found to be limited. Additionally, the school's health unit facilities were insufficient, and there was no collaboration with healthcare professionals. Based on this situational analysis, an educational program was developed, encompassing clear objectives, appropriate educational materials, teaching methods, and evaluation instruments. Knowledge was assessed using a 10-item true/false questionnaire, while practical skills were measured using an observation checklist consisting of six critical actions, each rated on a scale of 0 (not performed), 1 (performed incorrectly), or 2 (performed correctly).

The implementation phase commenced with an opening session and welcome addresses delivered by the head of the community service team and the class supervisors. Subsequently, a pre-test was administered over 15 minutes to assess students' baseline knowledge

using the prepared questionnaire. Practical skills were simultaneously evaluated, in which each student performed first aid procedures on a simulated bleeding wound for 30 minutes. Observations were conducted directly by the community service team using the designated checklist.

The core of the activity consisted of health education delivered through a combination of audiovisual presentations, interactive discussions, and direct demonstrations. Initially, students watched an educational video illustrating the step-by-step procedures for first aid on wounds. Key points including wound cleaning, hemorrhage control, dressing application, and infection prevention were reinforced through brief explanations by the team. Direct demonstrations were subsequently performed, and students were given the opportunity to practice the procedures in small groups under close supervision. This approach enhanced not only conceptual understanding but also motor skills and self-confidence in applying first aid independently in real-life situations.

Following the educational and practical sessions, a post-test was

conducted to evaluate improvements in both knowledge and skills. Knowledge was reassessed using the same 10-item questionnaire over 15 minutes, while practical skills were evaluated through repeated demonstrations over 30 minutes using the same observation checklist. Knowledge improvement was determined by an increase in post-test scores compared to pre-test scores, while skill enhancement was indicated by students achieving a minimum performance score of $\geq 75\%$ of the total possible score.

The pre-test and post-test results were presented graphically to facilitate analysis. Individual graphs illustrated each student's knowledge and skill progression, while average score graphs showed the program's overall effectiveness. The activity concluded with a reflection session, where students shared experiences and provided qualitative feedback on the training's usefulness and applicability.

Results

The results of the community service program are presented below, demonstrating enhancements in students' knowledge and competencies

in administering first aid for wounds. The data are depicted graphically to enable clear visual analysis, illustrating The graph illustrates an improvement in elementary school students’ knowledge of first aid for wounds following the health education intervention. Initial scores ranged from 60 to 90, whereas

both individual student progress and the average scores of the group before and after the health education intervention. post-education scores reached 100 for nearly all participants. The subsequent graph depicts the average knowledge scores of the students before and after the educational program.

Chart 1. Individual Students’ Knowledge of First Aid for Wounds Before and After the Health Education Intervention.

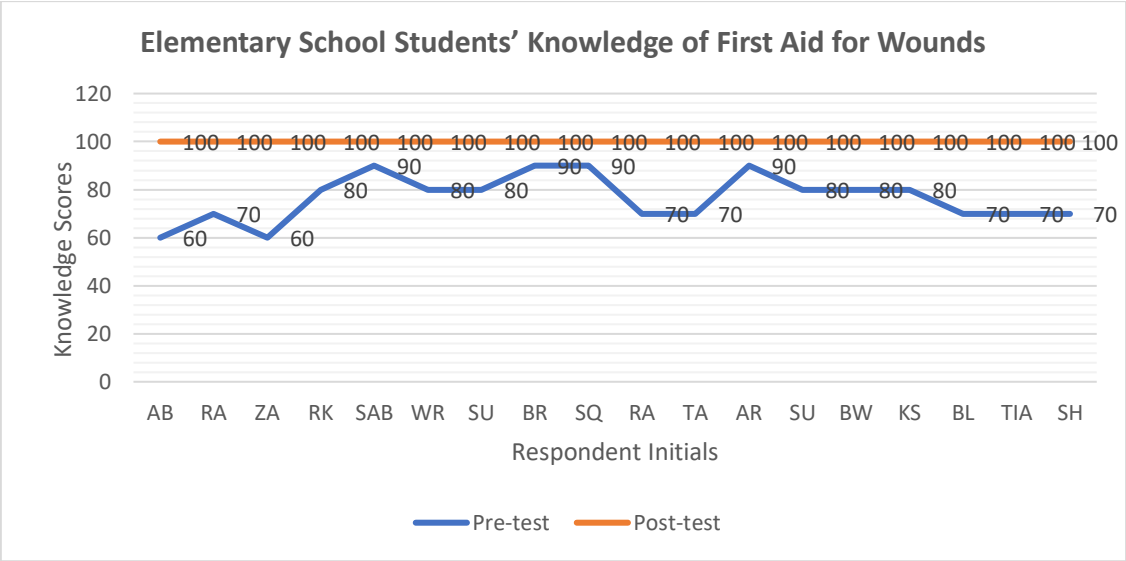
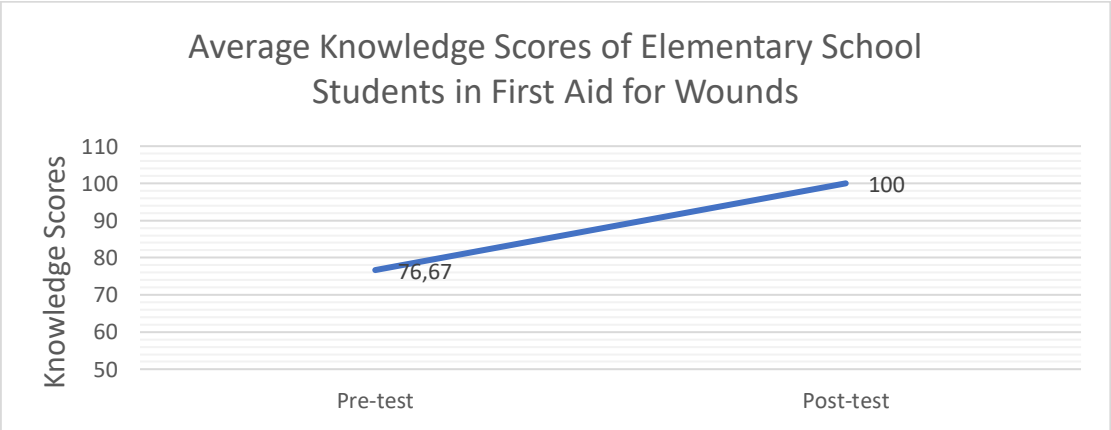


Chart 2. Students’ Average Knowledge of First Aid for Wounds Before and After the Health Education Intervention

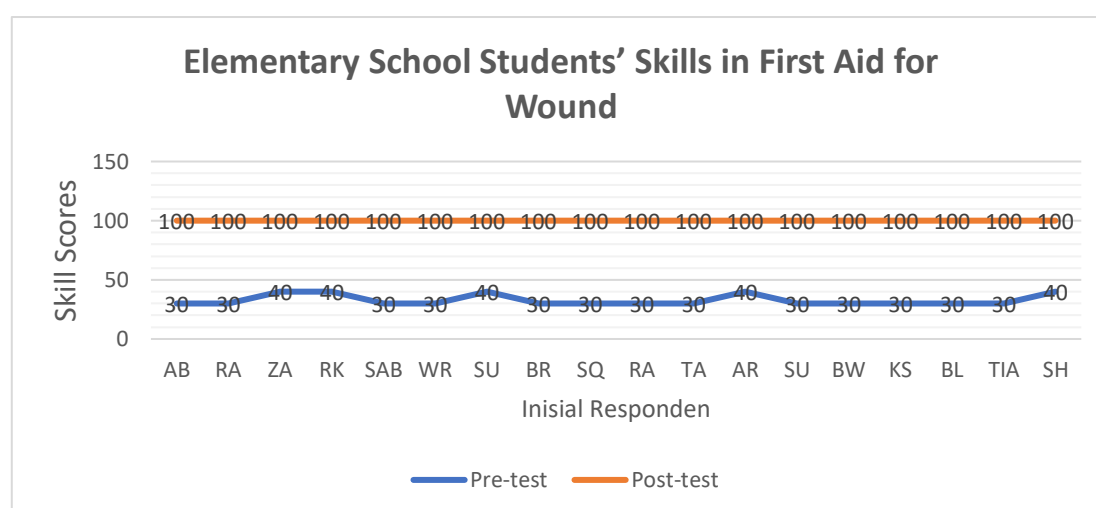


The chart illustrates the improvement in the average knowledge scores of elementary school students regarding first aid for wounds. Prior to the educational intervention, the mean score was 76.67, which increased to 100 following the program. This finding confirms the effectiveness of health

education in enhancing students' understanding of first aid for wounds.

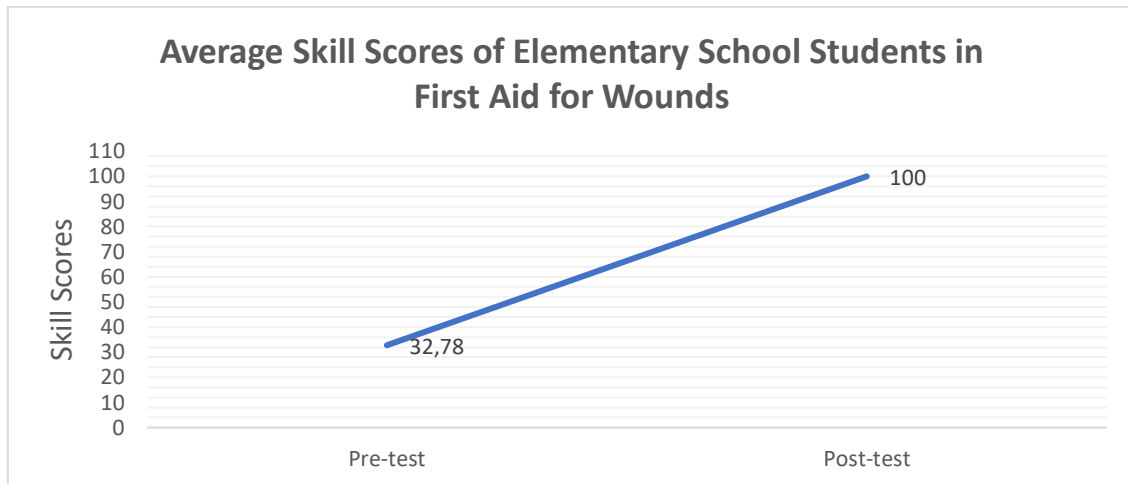
Meanwhile, students' skills in administering first aid for wounds can be observed in the following chart, illustrating performance before and after the implementation of the First Aid for Wounds Health Education program.

Chart 3. Individual Students' Skills in First Aid for Wounds Before and After the Health Education Intervention.



The chart illustrates a significant improvement in elementary school students' skills in providing first aid for wounds following the health education intervention. Prior to the education, students' scores ranged from 30 to 40, indicating limited knowledge and practical skills. After the intervention, nearly all participants achieved a score of 100, demonstrating optimal skill enhancement.

Chart 4. Individual Students' Skills in First Aid for Wounds Before and After the Health Education Interventio



This chart illustrates the increase in the average skill scores of elementary school students in providing first aid for wounds before (pre-education) and after (post-education) the health education program. The pre-education average score was 32.78, which sharply increased to 100 post-education. This indicates the

effectiveness of the intervention in enhancing students' first aid skills, demonstrating a significant improvement and the success of the educational program. The following are photographic documentations of the community service activity.



Photo 1. Group photo of elementary school students and supervising teachers during the community service activity.



Photo 2. Elementary school students practicing wound care techniques

Discussion

The discussion should interpret the findings presented in the results section within the context of existing knowledge (not a repetition of results). It should highlight new insights. Any assumptions must be clearly stated. The relationship between the results and the target population context, as well as the possibility of generalizing to other populations, should be addressed. Strengths and weaknesses of the community empowerment activity should be discussed in light of the local community conditions.

The results of this community service activity demonstrate a significant improvement in elementary school students' knowledge and skills regarding first aid for wounds. Analysis of pre-test and post-test data indicates that participatory-educational health

interventions effectively enhance students' ability to understand theoretical concepts and apply them in practice. These findings are consistent with previous research by Rosuliana, Februanti, Mariani, dan Cahyati (2023), which reported that the use of audiovisual media effectively improved students' knowledge and practical skills related to first aid for accidents (P3K). In their study, 30 students from SDN Babakan Kadu, Tasikmalaya, successfully answered approximately 90% of questions correctly and demonstrated proper wound care, including handling abrasions, bleeding, and burns, through demonstration and observation-based evaluation.

Similar outcomes were reported by Amsriza and Fakhriani (2022) in a community service project conducted at SD Muhammadiyah Sapen, Yogyakarta.

Using a quasi-experimental one-group pretest-posttest design, students' average pre-test score of 89.1 increased to 98.9 in the post-test, with paired-samples t-test analysis indicating a significant difference ($p = 0.002$). These results further confirm the effectiveness of media-based educational methods, including video, presentations, and leaflets, in strengthening students' understanding of first aid for wounds.

The success in improving students' knowledge and skills is supported by the integration of teaching methods that combine theoretical instruction with practical application, as well as the use of audiovisual resources. Lowell dan Moore (2020) assert that this approach enables students to acquire both theoretical knowledge and practical skills that can be applied in real-life situations. Furthermore, audiovisual media, such as videos, animations, and simulations, can increase student engagement, enhance retention, and motivate active participation in the learning process (Utaminingsih, Machfud, & Kassymova, 2024).

Beyond pedagogical considerations, these findings underscore the importance of first aid training as a component of

students' life skills development. Hashil et al., (2024) emphasizes that first aid education should be an integral part of school curricula, as it not only provides a sense of safety but also fosters social awareness and responsibility among students. Additionally, Correia et al., (2024) report that students trained in first aid are more confident in handling emergency situations and can act quickly and effectively, thereby reducing the risk of injury or mortality due to accidents.

Based on these findings, integrating first aid training into school curricula is of critical importance. An approach that balances theory and practice, supported by the use of audiovisual media, not only expands students' knowledge and skills but also equips them to respond effectively in emergency situations. Moreover, such educational programs can cultivate social responsibility and empower students to contribute positively to the safety of themselves and others within the school and wider community.

Conclusion

Community service activities significantly improved elementary students' knowledge and skills in first

aid for minor injuries such as abrasions and lacerations. The combination of interactive lectures, practical demonstrations, and audiovisual media effectively enhanced both cognitive understanding and psychomotor abilities. Mean knowledge scores increased from 76.67 to 100, while skill observation scores rose from 32.78 to 100, indicating substantial competency gains. The program not only equipped students with practical first aid skills but also fostered early health literacy applicable at school and home. Sustaining similar educational interventions is recommended to improve children's preparedness and promote safer learning environments.

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